Turner, B.L. 2012. Taxonomy and distribution of *Senecio huachucanus* and *S. multidentatus* (Asteraceae). Phytoneuron 2012-56: 1–5. Published 27 June 2012. ISSN 2153 733X

TAXONOMY AND DISTRIBUTION OF *SENECIO HUACHUCANUS* AND *S. MULTIDENTATUS* (ASTERACEAE)

BILLIE L. TURNER
Plant Resources Center
The University of Texas
Austin, Texas 78712

ABSTRACT

The taxonomic status and distribution of *Senecio huachucanus* and *S. multidentatus* is reviewed, largely to determine if the former is properly treated as a variety of the latter, as proposed by Barkley (2006). It is concluded that *S. huachucanus* is a well-demarcated species, represented in at least one herbarium (ARIZ) by numerous collections, all assembled from the Huachuca and Santa Rita Mountains of southeasternmost Arizona. Intergradation between the two species was not detected nor do the two taxa occur together. Surprisingly, a single collection (ASU) of the rare but widespread *S. multidentatus* was discovered, this from the Chiricahua Mountains of Cochise Co., the only known collection from the USA, although the latter occurs sporadically at higher elevations in Mexico. Descriptions of the two taxa are provided along with maps showing their distribution.

KEY WORDS: Asteraceae, *Senecio huachucanus, Senecio multidentatus*, Arizona, Mexico

Senecio huachucanus was first described by Asa Gray in 1883 and typified by a Lemmon collection from high bluffs near Fort Huachuca in southeastern Arizona. Most subsequent workers maintained the species until Barkley (2006) reduced it to varietal rank under his broad circumscription of *S. multidentatus*, this typified by collections from Mount Orizaba (Vera Cruz) in central Mexico. The following key serves to distinguish the two taxa.

1. Involucral bracts 8, 4–5 mm long; disc florets 10–20; USA (Huachuca and Santa Rita Mts., Arizona) and Mexico (Sonora) ..... **Senecio huachucanus**
1. Involucral bracts 13–21, 6–8 mm long; disc florets 30–numerous; USA (Chiricahua Mts., Arizona) and Mexico (Chihuahua and eastern mountains) ..... **Senecio multidentatus**

SENECIO HUACHUCANUS A. Gray, Proc. Amer. Acad. Arts 9: 54. 1883. *Senecio multidentatus* var. *huachucanus* (A. Gray) T.M. Barkley, Phytologia 67: 238. 1987. **TYPE: USA. Arizona.** Cochise Co., near Ft. Huachuca, *Lemmon s.n.* (holotype: GH).

Perennial herbs 0.5–1.0 m high. **Mid-stem leaves** mostly 10–20 cm long, 2–7 cm wide, glabrous, petiolate along the lower stems, clasping above; petioles winged, 3–6 cm long, margins irregularly dentate. **Capitulescence** a terminal corymbose panicle ca 10 cm high, and as wide, the ultimate peduncles glabrous, 5–15 mm long. **Heads** narrowly campanulate, 5–6 mm high, 3–4 mm across; involucral bracts 8 (rarely ca 11), united, linear-lanceolate, their apices acute to obtuse, minutely pubescent. **Receptacle** convex, 1–2 mm across, glabrous, epaleate. **Ray florets** 3–8, pistillate, fertile; ligules yellow, 3–9 mm long, 2–3 mm wide, 4–5 nervate. **Disc florets** yellow, glabrous, 10–20 to a head; tubes ca 3 mm long, enlarged at base; throats ca 3 mm long, lobes 5. **Achenes** ca 1.5 mm long, glabrous; pappus of numerous, readily deciduous, white bristles, 4–6 mm long. **Chromosome number** not determined.

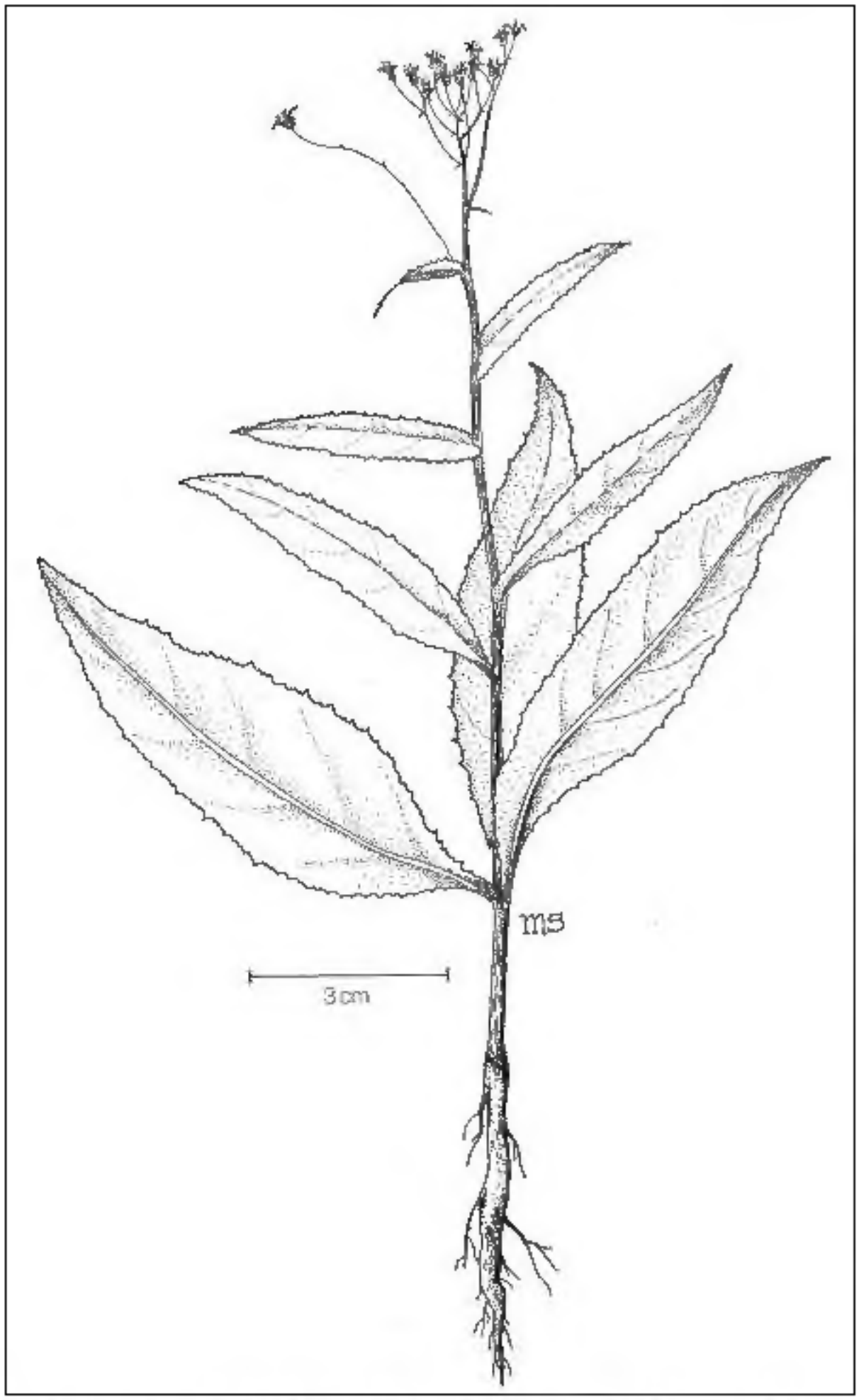

Figure. 1. Line drawing of *Senecio huachucanus* (ARPC 2001). See color photos at website.

Specimens examined (all of the following sheets on file at ARIZ). **Arizona.** Cochise Co.: Huachuca Mts., W side of Miller Peak, 9000 ft, 26 Aug 1990, *Bowers & McLaughlin 3308*; W slope of Miller Peak, 9200 ft, 1 Sep 1991, *Fishbein 570*; N-facing slope of Ramsey Canyon on trail from Carr Canyon, 7200 ft, 30 Sep 1945, *Gould & Haskell 3382*; Huachuca Mts., Scheelite Canyon, 7500 ft, 15 Sep 1993 *Mount s.n.*; Miller Peak, 9000 ft, 20 Oct 1990, *Warren & Anderson s.n.*; Pima Co.:

Santa Rita Mts., below Baldy Saddle and above junction with Super Trail, 8500 ft, 17 Nov 1990, *Stallcup s. n.*; Santa Cruz Co.: Santa Rita Mts., 8000 ft, 23 Aug 1936, *Darrow & Arnold s.n.*; near summit of Mt. Hopkins, 17 Sep 1980, *Fletcher 5050* (TEX); Santa Rita Mts., 23 Aug 1960, *Goodding 247a-60*; trail from Madera Canyon to Mt. Wrightson (Baldy), 9400 ft, 12 Aug 1945, *Parker 5856*; NW slopes of Mt. Wrightson, along trail about 1/8 mile below Bellow's Spring, 8300 ft, at least 500 plants in the area, 3 Oct 1981, *Toolin 1728*; Mt. Wrightson, steep NW-facing slope below Bellow's Spring, at least 500 plants, confined to an area less than 1/4 square mile, 8000-8200 ft, 26 Sep 1987, *Toolin 2216*; Santa Rita Mts., Mt. Hopkins, a few dozen plants on slopes below road, N of Common Building of observatory, 2800 m, 19 Oct 1990, *Toolin & Mc Hargue 2328*.

Senecio huachucanus was treated as a good species by Barkley (1978) and listed, early on, as an imperiled species by Toole (1982), this later retracted following additional studies (Gries 1992), presumably, in part, because of Barkley's reassessment (per annotations, and Barkley 2006) that it was but a variety of the widespread *S. multidentatus*. A better candidate for "imperiled status" in Arizona would be the newly discovered *S. multidentatus* population in the Chiricahuas, discussed below, this being a relatively rare taxon throughout its range.

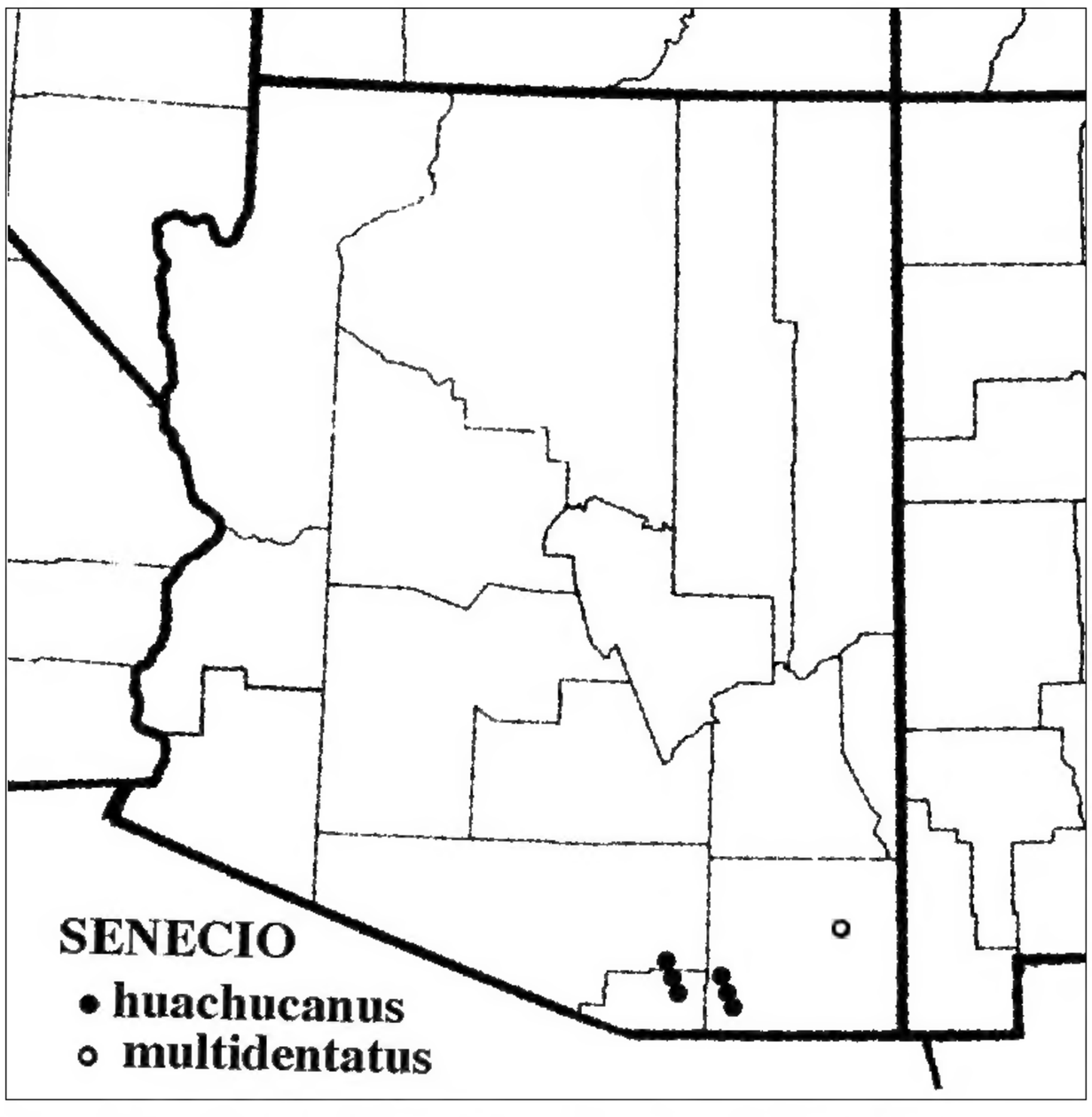

Figure 2. Distribution of *Senecio huachucanus* and *S. multidentatus* in the USA.

SENECIO MULTIDENTATUS Sch. Bip. ex Hemsl., Biol. Centr. Amer. Bot. 2: 243.1881. **TYPE**: **MEXICO**. **Veracruz** [or **Puebla**]. Mt. Orizaba. (at least 4 syntypes at K, various collectors).

Senecio multidentatus var. *minor* Hemsl., Biol. Centr. Amer. Bot. 2: 243. 1881. **TYPE**: **MEXICO**. **Veracruz** [or **Puebla**]. Mt. Orizaba (several syntypes at K, 3 collectors).

Senecio heterodontus Greenm., Field Columb. Mus. Bot. 2: 277. 1907. **TYPE**: **MEXICO**. **San Luis Potosí**. Alvarez, *Palmer 231* (GH).

Senecio potosinus Greenm., Monogr. *Senecio* 1: 25: 1901. **TYPE**: **MEXICO**: **San Luis Potosí**. Mts. near San Miguelita, *Schaffer 280* (GH).

Perennial herbs 0.5–2.0 m high. **Midstem leaves** mostly 15–30 cm long, 3–10 cm wide, closely tomentose to irregularly glabrescent, petiolate along the lower stems, clasping above; petioles winged, 6–20 cm long, margins irregularly dentate. **Capitulescence** a terminal corymbose panicle 20–30 cm high, 10–20 cm wide, tomentose like the stems, the ultimate peduncles 10–25 mm long, to some degree tomentose. **Heads** narrowly campanulate, 8–10 mm high, 6–9 mm across; involucral

bracts 13–21, 5–6 mm long, united, linear-lanceolate, their apices acute to obtuse, minutely pubescent. **Receptacle** convex, 2–4 mm across, glabrous, epaleate. **Ray florets** 8–11, pistillate, fertile; ligules yellow, 6–9 mm long, 2–3 mm wide, 4–5 nervate. **Disc florets** yellow, glabrous, 30–numerous per head; tubes ca 3 mm long, enlarged at base; throats ca 3 mm long, lobes 5. **Achenes** ca 3 mm long, glabrous; pappus of numerous, readily deciduous, white bristles, 4–6 mm long. **Chromosome number** not determined.

The only collection of *Senecio multidentatus* from the USA known to me is from Cochise Co., Chiricahua Mts., Chiricahua Wilderness Area, Snowshed Trail; coniferous forest, 8750 ft, 18 Sep 1976, *Leithliter 829* (ASU). This collection also was mentioned by ARPC (2001) but referred to as var. *huachucanus*. Barkley annotated the sheet in 1998 as *S. multidentatus* var. *huachucanus*, but to me it is much closer to typical *S. multidentatus*.

Senecio multidentatus is similar to *S. huachucanus* but is readily distinguished by features given in the above key. So far as known, the two taxa do not grow together, although *S. multidentatus* does occur in the Chiricahua Mountains of Cochise Co. northeast of those in which *S. huachucanus* occurs (Fig. 2). Interestingly, the closest populations of *S. multidentatus* to the Chiricahuan site are those from subalpine areas of pine-fir forests (3000–3200 m) on Mt. Mohinora, Chihuahua (e.g., *Nesom 6453*, TEX). Nor has evidence of intergradation been noted.

In short, *Senecio multidentatus* is known only from sporadic, high elevational sites throughout northern Mexico (Fig. 2) and from a single known locality from the USA. It is interesting to speculate that the ancestral populations of *S. multidentatus* that might have given rise to *S. huachucanus* are still represented in Arizona by relic populations in the Chiricahua Mountains. DNA should ultimately help resolve the problem.

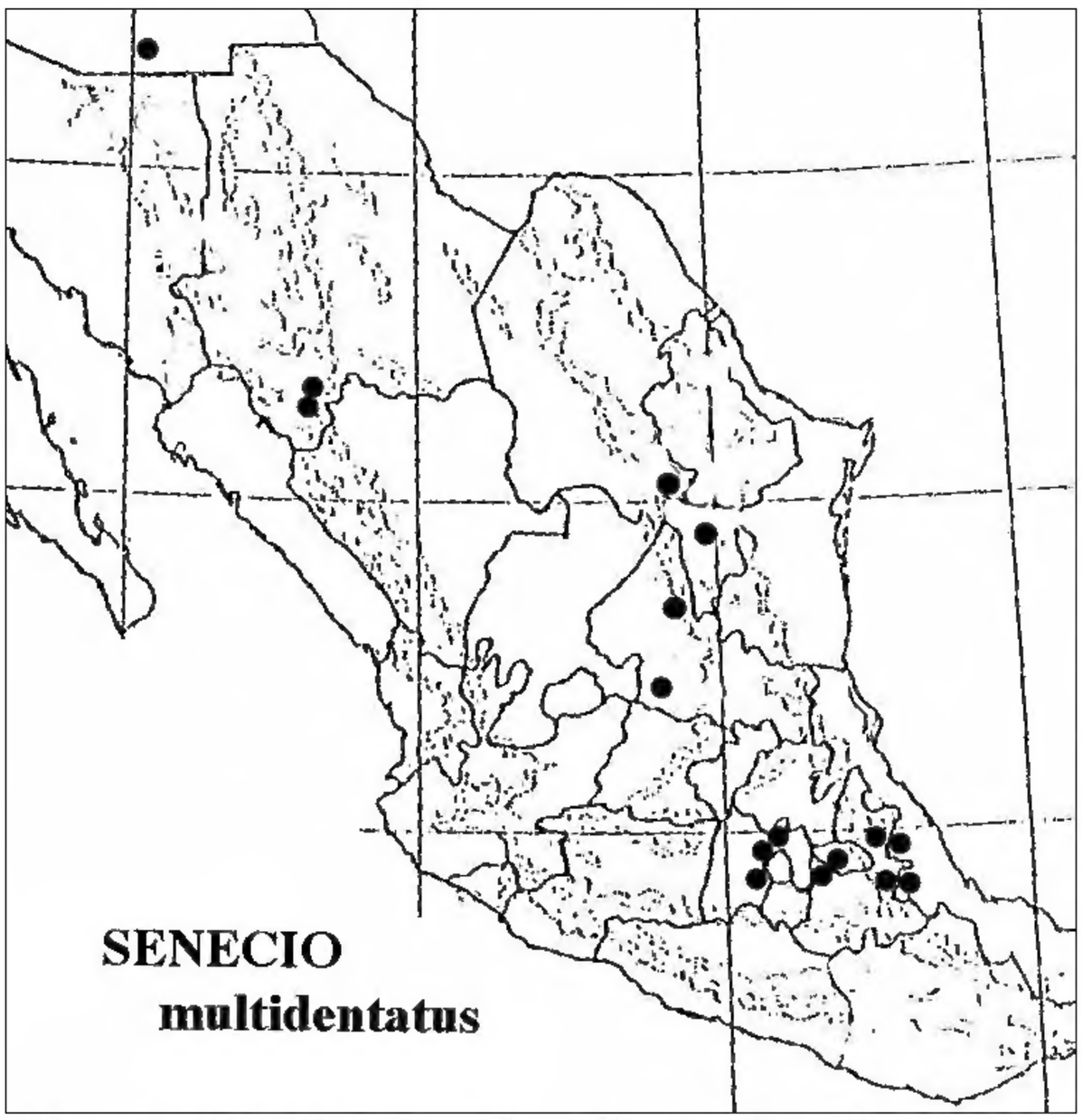

Figure 3. Distribution of *Senecio multidentaus* in Mexico.

ACKNOWLEDGEMENTS

Thanks to ARIZ and ASU for the loan of specimens and to Jana Kos, Tina Ayers, and my constant colleagues Mike Powell and Guy Nesom for helpful suggestions on the paper. The dot maps are based upon specimens on file at ARIZ, ASU, and LL-TEX.

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